

REMARKS

Please allow the correction of Fig. 3 by changing reference numeral 50 to 56, as suggested by the examiner and shown in red ink in the attached copy of Fig. 3. Also transmitted herewith is replacement sheet with corrected Fig. 3. No new matter has been added, as, the examiner has correctly pointed out, the temperature sense and leak detect PCB is referred to with reference numeral 56 on page 6, in paragraph 31.

The examiner is requested to acknowledge receipt of Applicant's Information Disclosure Statement (IDS) filed with the application and to return an initialed copy of the Form PTO-1449 submitted therewith.

In the Office Action, independent Claim 1 was rejected for obviousness over Isenga in view of Schuda et al. The examiner contends that while Isenga does not specifically teach the window being made of sapphire, it allegedly would have been obvious to modify the transom light of Isenga to incorporate the sapphire window of Schuda et al. "in order to provide a resilient and thermally conductive window in protecting the light." The examiner further notes that "it is also obvious that sapphire windows are used in high-intensity discharge lamp applications, whereby sapphire's high thermal conductivity provides efficient heat dissipation." This obviousness rejection is respectfully traversed.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references when combined must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ.2d 1438 (Fed. Cir. 1991).

Isenga discloses a transom light having a disc-shaped transparent lens 43 molded from polycarbonate (column 6, line 11). The transom light of Isenga utilizes a conventional light bulb 17, i.e., an incandescent light bulb. Isenga is concerned with the problems of the decorative appearance of the bezel and water leakage through screw holes in the bezel. In addition, Isenga is concerned with water leakage between the lens and the housing flange and between the housing flange and the hull. Isenga is further concerned with the problem of providing at least two gaskets which increases production costs, complicates installation and adds to the overall thickness of what is desirably a flush mounted transom light. Isenga is not concerned with the problem of the scratching of the window of a thru-hull light from hull cleaning, nor is Isenga concerned with breakage of the window due to wave slap. Furthermore, Isenga uses a conventional incandescent light bulb and not a high intensity discharge (HID) lamp. Isenga is not concerned with heat dissipation from the interior of the housing.

Schuda et al. discloses a short-arc flashlamp having an internal integral reflector. The flashlamp has a window assembly 16 which couples to the forward end of a body section 14 formed of a dielectric material which defines the internal reflector 11. The window assembly 16 includes a transparent circular window 30 formed of a sapphire disc. Schuda et al. gives no indication why the window 30 is made of sapphire. The problem addressed and solved by Schuda et al. is to provide an internally integral reflector in a short-arc flashlamp, since flashlamps with external reflectors develop oxides on their surface and absorb short wave length light, thereby seriously degrading the spectral performance of the lamp when operated at relatively high current pulses. Schuda et al. is not concerned with heat dissipation from a lamp housing, nor is Schuda et al. concerned with scratching on the window of a lamp housing.

It is therefore respectfully submitted that the examiner has failed to make out a *prima facie* case of obviousness of Claim 1 based on the combination of Isenga and Schuda et al. Neither Isenga nor Schuda et al. is concerned with the heat dissipation from a lamp housing, nor the scratching of a window of a lamp housing when the lamp housing is used as part of a thru-hull light fixture. The fact that Isenga is not concerned with the problem of heat dissipation is evident

by the use of polycarbonate for his lens 43, which is a very poor thermal conductor. Therefore, there is no suggestion or motivation in either of these references to substitute the sapphire window of Schuda et al. for the polycarbonate lens of Isenga. Moreover, Isenga utilizes an incandescent light bulb, not an HID lamp. A sapphire window is an extremely high cost item available from very few suppliers and is very difficult to machine. Accordingly, one skilled in the art of making thru-hull lights would not have any incentive to incorporate the sapphire window of Schuda et al. into the transom light of Isenga. Only the Applicants' own disclosure describes the benefits of utilizing the flat, disc-shaped window 74 made of sapphire. It is improper to use Applicants' own disclosure to provide the teaching or suggestion that supports an obviousness rejection based on the combination of prior art references. As the examiner well understands, this is impermissible hindsight reconstruction. Accordingly, withdrawal of the obviousness rejection of Claim 1 over the combination of Isenga and Schuda et al. is requested. Applicants disagree with the obviousness rejections set forth with regard to Claims 2-10. However, since Claim 1 is patentable, it follows that Claims 2-10, which depend therefrom, are also patentable, and therefore, it is unnecessary to set forth Applicants' arguments separately traversing the obviousness rejections of Claims 2-10.

Independent Claim 11 has been rejected for alleged obviousness over Isenga and Schuda et al. The examiner admits that Isenga does not teach the lamp having an elliptical reflector, but alleges it would have been obvious to substitute the elliptical reflector of Schuda et al. into a transom light of Isenga. This obviousness rejection is respectfully traversed. In column 2, lines 52-55, Schuda et al. states that "reflector 11 may be parabolic, elliptical or aspherical in shape to provide a particularly desired collimation of light." The transom light of Isenga has no reflector, and Isenga is not concerned with the beam pattern of the transom light, or any particular benefits to be achieved by utilizing a special reflector in an underwater thru-hull light. Schuda et al. is concerned with providing a reflector with a specialized type of short-arc flashlamp and with the shortcomings of utilizing an external reflector. This problem is solved by Schuda et al. utilizing a body section 14 formed of dielectric material which defines an internal reflector 11. The internal reflector 11 of Schuda et al. is totally incompatible with the transom light design of Isenga, and therefore, it would not have been obvious to provide the integral internal reflector

11 of Schuda et al. with an elliptical shape into the transom light of Isenga. As stated on page 8, paragraph 36 of Applicants' disclosure, the shape and size of its reflector 36 is designed so that the light reflected from the lamp 20 will pass through a relatively small opening defined by the unobstructed portions of the sapphire window 74. The sapphire window 74 is relatively expensive, but can be made less expensive by utilizing a smaller window, thereby providing the additional benefit of decreasing the size of the hole that must be cut through the hull of the vessel. Since the transom light of Isenga utilizes an inexpensive polycarbonate window 43 and has an incandescent light bulb 17, there is no need for a specialized elliptical reflector in the transom light. Accordingly, the examiner has failed to make a *prima facie* case of obviousness of Claim 11 based on the proposed modification of Isenga in view of Schuda et al. Applicants disagree with the examiner's obviousness rejections of Claims 12-20 which depend from independent Claim 11. However, since Claim 11 is allowable, it is not necessary to separately argue the obviousness rejections of Claims 12-20.

Independent Claim 21 has been rejected for alleged obviousness over Isenga in view of Volk et al. The examiner admits that Isenga does not teach an electric circuit having a means for shutting off a source of power to the lamp upon the detection of a predetermined excessive heat condition. However, the examiner alleges that it would have been obvious to modify the transom light of Isenga to incorporate the thermal shutdown circuit of Volk et al. "to ensure an additional safety measure for the light, as well as the passengers of the vessel." Isenga is not concerned with excessive heat conditions within the transom light, let alone shutting off a source of power to the conventional incandescent bulb 17 used therein. Volk et al. discloses a transistorized circuit for providing constant illumination with multiple light-emitting diodes. The amount of current passing through the diodes depends significantly upon the forward voltage drop of the diodes, which themselves varies with size, process, temperature and aging. Thus, Volk et al. represents non-analogous art, and one skilled in the art of designing thru-hull lights utilizing lamps or light bulbs would not look to the art of control circuitry for LED illumination for concepts on how to improve a thru-hull light. The Federal Circuit has held that the combination of elements from non-analogous sources, in a manner that reconstructs the Applicants' invention only with the benefit of hindsight, is insufficient to present a *prima facie* case of obviousness, *In re Oetiker*,

977 Fed 2d 1443, 24USPQ 2d 1443 (Fed Cir 1992). Accordingly, withdrawal of the obviousness rejection of Claim 21 over Isenga in view of Volk et al. is requested. Applicants respectfully disagree with the examiner's obviousness rejections of Claim 22-30 which depend from independent Claim 21. However, since Claim 21 is allowable over the prior art, it is not necessary to separately argue these obviousness rejections.

Independent Claim 31 has been rejected for alleged obviousness over Isenga in view of Davenport et al. While the examiner admits that Isenga does not specifically teach an electrical circuit having a means for shutting off a source of power to the lamp upon the detection of water leakage into the lamp housing, he contends that it would have been obvious to modify the transom light of Isenga to incorporate the water-sensitive circuit of Davenport et al. "to ensure an additional safety measure for the light, as well as the passengers of the vessel." Isenga is not concerned with water leak detection and electrical power shut down. In fact, Isenga does not disclose any kind of circuitry, whatsoever, let alone suggest any modifications or features thereof. Davenport et al. discloses a light fixture with a submersible enclosure for an HID lamp, said fixture including a ballast for supplying power to the HID lamp. The fixture also includes a water-sensitive circuit having a conductance that increases in response to water leaking into the enclosure for conducting current from the ballast and *limiting* the ballast voltage. Alternatively, the submersible enclosure may contain a power lead for supplying power to an electrical load such as a lamp ballast, a non-ballasted lamp or a color wheel. The power lead includes a fuse region that *corrosively* reacts in the presence of leaked water so as to sufficiently wither away the fuse region and terminate power to the load. Davenport et al. is directed to lighting for swimming pools, and there is nothing in either Isenga or Davenport et al., which suggests that the water-sensitive circuit of Davenport et al. should be incorporated into the transom light of Isenga. The lighting systems of Isenga and Davenport et al. are completely incompatible. Isenga uses a conventional low voltage incandescent light bulb 17 which does not have any ballast. Accordingly, the embodiment of the water-sensitive circuit of Davenport et al., which is designed to be utilized with a ballast, would not even work in the transom light of Isenga. The alternative embodiment of Davenport et al., which can be used with a non-ballasted lamp, utilizes a fuse which withers away over time until it terminates power to the load. Even if this embodiment of

the water-sensitive circuit of Davenport et al. were incorporated into the transom light of Isenga, the result would still not be the invention of Claim 31 which requires “means for shutting off a source of power to the lamp *upon detection* of leakage of water into the lamp housing.” Corrosive withering away of the fuse in Davenport et al. does not accomplish cutting off the source of power upon detection of water leakage. Accordingly, withdrawal of the obviousness rejection of Claim 31 over the combination of Isenga and Davenport et al. is requested. Applicants disagree with the obviousness rejections of Claims 32-39 which depend from independent Claim 31. However, since these claims are allowable for the same reasons as Claim 31, it is not necessary to separately argue the non-obviousness thereof.

Independent Claim 41 has been rejected for alleged obviousness over Isenga in view of Shackle. The examiner admits that Isenga does not specifically teach an electrical circuit to the lamp including a ballast and means for shutting off a source of power to the ballast in the event of the detection of a fault in the lamp, but contends that it would have been obvious to modify the transom light of Isenga to incorporate the fault-status circuit of Shackle “to ensure an additional safety measure for the light, as well as the passengers of the vessel.” As already explained, Isenga is not concerned with any electrical aspects of the transom light, and indeed, discloses no circuitry or components thereof. Shackle discloses a low pressure gas discharge lamp ballast which includes a load circuit with a lamp, and a driver for supplying AC load current to the lamp. The driver includes circuitry for shutting off the load current in the presence of a lamp fault condition. Shackle is concerned with ultraviolet lamps used for sterilization of water and air in water supplies, air ventilation systems and the like. More particularly, because it is harmful for humans to view ultraviolet light, Shackle is concerned with providing an ON-OFF indicator for an ultraviolet lamp, which does not require the human to view the lamp to ascertain whether it is illuminated. Shackle has nothing to do with thru-hull lighting, and is therefore, non-analogous art. As stated in Applicants’ disclosure, the electrical circuits of prior art thru-hull light have not had protection against water leakage, protection against galvanic action which can lead to excessive corrosion of their metal parts, nor power status or fault indicators. Without some teaching, motivation or suggestion in Isenga and Shackle expressly stated therein, it is improper to modify Isenga in view of Shackle in the manner proposed by the examiner simply to achieve

the invention of Claim 41 taught by Applicants. Accordingly, withdrawal of the obviousness rejection of Claim 41 over the combination of Isenga and Shackle is requested. Applicants disagree with the obviousness rejections of Claims 42-50 which depend from independent Claim 41. However, since these claims are allowable for the same reasons as Claim 41, it is not necessary to separately argue the non-obviousness thereof.

Independent Claim 51 has been rejected for alleged obviousness over Isenga in view of Shackle. The examiner admits that Isenga does not teach means for indicating power status and/or fault status. Independent Claim 51, together with Claims 52-60 which depend therefrom, are allowable over the combination of Isenga and Shackle for the same reasons as Claims 41-50.

Independent Claim 61 has been rejected for alleged obviousness over Isenga in view of Rahm et al. The examiner admits that Isenga does not teach that the lamp have a color temperature of at least 5000K, but alleges that it would have been obvious to incorporate the 5000K lamp of Rahm et al. "to ensure a desired quality of light." Rahm et al. discloses an arrangement of light-emitting diodes (LEDs) that produce a color temperature adjustable, white light. In column 2, lines 20-23, Rahm et al. indicates that the white LEDs are available over a range of color temperatures from 5000K to 8500K. Isenga has a conventional and incandescent light bulb 17 and is not concerned with the color temperature emitted thereby, whatsoever. Rahm et al. has nothing to do with thru-hull lights, and in fact, deals with the adjustable color temperature of white light from LEDs. One skilled in the art of thru-hull light design would not look to Rahm et al. for the solutions to any thru-hull lighting problems because it is non-analogous art. Furthermore, the LEDs of Rahm et al. are completely incompatible with the construction of the transom light of Isenga. Query: Where and how would the array of LEDs of Rahm et al. be mounted relative to body 15 and shroud 27 of Isenga? How would such LEDs be powered? For the foregoing reasons, withdrawal of the obviousness rejection of independent Claim 61 over Isenga combined with Rahm et al. is requested. Applicants do not agree with examiner's obviousness rejection of dependent Claims 62-70; however, it is not necessary to separately argue these rejections.

Independent Claim 71 has been rejected over the combination of Isenga, Schuda et al., Volk et al. and Davenport et al. Claim 71 is directed to a thru-hull light which includes a sapphire window and an electrical circuit for shutting off a source of power to the lamp upon detection of a predetermined excessive heat condition or upon the detection of leakage of water into the lamp housing. Claim 71 is allowable for the same reasons already argued with respect to independent Claims 1, 21 and 31.

Independent Claim 72 has been rejected for alleged obviousness over Isenga in view of Dunn et al. While the examiner admits that Isenga does not teach the lamp having a light pipe disposed between the lamp and the front end portion of the housing, the examiner contends that it would be obvious to modify the transom light of Isenga to incorporate the light pipe of Dunn et al. "to ensure safety of the light, as well as the passengers on the vessel." The transom light of Isenga utilizes a conventional incandescent light bulb 17 with a dome-shaped polycarbonate 43 in front of the same. It does not have any kind of fiber optic components, such as a light pipe, nor any need for the same. Dunn et al. discloses a submersible fiber optic lens assembly for use with fiber optic cable, which is an arrangement that maximizes delivery of light from a fiber optic cable to a tool. The design and construction of the fiber optic lens assembly of Dunn et al. is completely incompatible with the structure of the transom light of Isenga. There is nothing in either Isenga or Dunn et al. which suggests that the transom light of Isenga should have any type of fiber optic component, such as a light pipe. Moreover, the examiner has not specified any reason or manner of insertion of the fiber optic cable 103 of Dunn et al. between the incandescent light bulb 17 and the polycarbonate 43 of Isenga. There is nothing suggesting the combination of Isenga and Dunn et al. based on ensuring safety of the light or passengers. For the foregoing reasons, withdrawal of the obviousness rejection of independent Claim 72, and Claims 73-75 which depend therefrom, over the combination of Isenga in view of Dunn et al. is requested.

Independent Claim 76 has been rejected for alleged obviousness over Isenga over Schuda et al. The examiner admits that Isenga does not have a reflector with the hybrid inner parabolic section and an outer elliptical section, but alleges it would have been obvious to provide such a reflector in view of Schuda et al. Claim 76 is allowable over Isenga and Schuda et al. for the

same reasons argued above with respect to independent Claim 11. Moreover, Schuda et al. suggests a parabolic reflector or an elliptical reflector, not a hybrid of the two, as required by Claim 76. Accordingly, withdrawal of the obviousness rejection of Claim 76 over Isenga and Schuda et al.

Independent Claim 77 has been rejected for alleged obviousness over Isenga in view of Richardson. The examiner admits that Isenga does not teach a thermal insulating sleeve surrounding the forward end of the lamp housing, but alleges that it would have been obvious to incorporate the thermal insulating sleeve of Richardson “in order to reduce the possibility of injury or damage due to high open circuit voltage, environmental effects and the like.” As previously stated, Isenga is not concerned with excessive heat generated in a thru-hull light. Richardson is concerned with fluorescent lamp sockets and fluorescent lamp insulators used in refrigeration systems, and particularly the reliability of such sockets and their mounting arrangements in environmental conditions that have temperature extremes. Fluorescent lights are not used in thru-hull light fixtures. One skilled in the art in designing thru-hull light fixtures would not look to the art of fluorescent lights and sockets for their connectors in seeking to design an improved thru-hull light. Thus, Richardson is non-analogous art. The examiner cites base 56 and housing wall 58 illustrated in Figs. 5 and 10 of Richardson as providing thermal insulation. It would not be obvious to incorporate base 56 or housing wall 58 of Richardson, which respectively surround the pins 54 and fluorescent glass envelope 42, in the thru-hull light of Isenga because these structures are completely incompatible. Moreover, there would be no motivation to make such a combination since the transom light of Isenga is not concerned with heat dissipation. In addition, even if base 56 and housing wall 58 of Richardson were somehow combined with Isenga, the result would still not be the invention of Claim 77 which requires “at least one thermal insulating sleeve surrounding the forward end of the lamp housing.” The base 56 and the wall 58 of Richardson by being cylindrical, are incompatible with the frusto-conical portion 33 of the shroud 27 of Isenga. For the foregoing reasons, withdrawal of the obviousness rejection of Claim 77 over the combination of Isenga and Richardson is requested.

Independent Claim 78 has been rejected for alleged obviousness over Isenga in view of Jaksic et al. The examiner admits that Isenga does not have a hollow reflective tube disposed between the lamp and the front end portion of the housing, but alleges that it would have been obvious to incorporate the hollow reflective tube of Jaksic et al. "in order to collimate and focus the beam of light." The transom light of Isenga has a simple incandescent light bulb 17, a surrounding shroud 27, and a dome-shaped polycarbonate lens 43. Isenga is not concerned with light dispersal or the light pattern. Jaksic et al. is concerned with optical tubes used in sensor arrangements, such as light barriers, with the receiver being coupled to the tube and with the transmitter either being separate from the tube or being coupled with the tube and arranged in the area of the receiver. Reflections can be caused in the interior of such tubes both by external radiation sources and by radiation emitted by the transmitter itself, but lead to an undesired increase in the quantity of radiation detected by the receiver. Therefore, Jaksic et al. is concerned with the construction of an optical tube for suppressing interfering radiation. Multiple reflecting surfaces defined by ribs are provided in round, semi-square, oval, conical and other shapes. There is absolutely nothing in either Isenga or Jaksic et al. to suggest that the complex structures of Jaksic et al. ought to be inserted into the transom light of Isenga. Even if such a combination were made, the result would still not be the invention of Claim 78, which requires a reflective tube for conveying light from the lamp to the window since the reflectors of Jaksic et al. are not tubes. For the foregoing reasons, withdrawal of the obviousness rejection of independent Claim 78, and Claims 79-80 which depend therefrom, over Isenga combined with Jaksic et al. is requested.

Independent Claim 81 has been rejected for alleged obviousness over Isenga in view of Schuda et al. The examiner admits that Isenga does not teach making the window out of scratch resistant material, but alleges this would have been obvious in view of Schuda et al. This rejection is legally improper for the same reasons argued above with respect to Claim 1. Claims 82-90 which depend from independent Claim 81 are allowable for the same reasons, and their patentability need not be separately argued.

The present application is believed to be in condition for allowance, and notification to this effect is solicited. No additional fee is due at this time. The Commissioner is hereby authorized to charge any additional fees, or credit any overpayment, to Deposit Account 50-0626.

Respectfully submitted,



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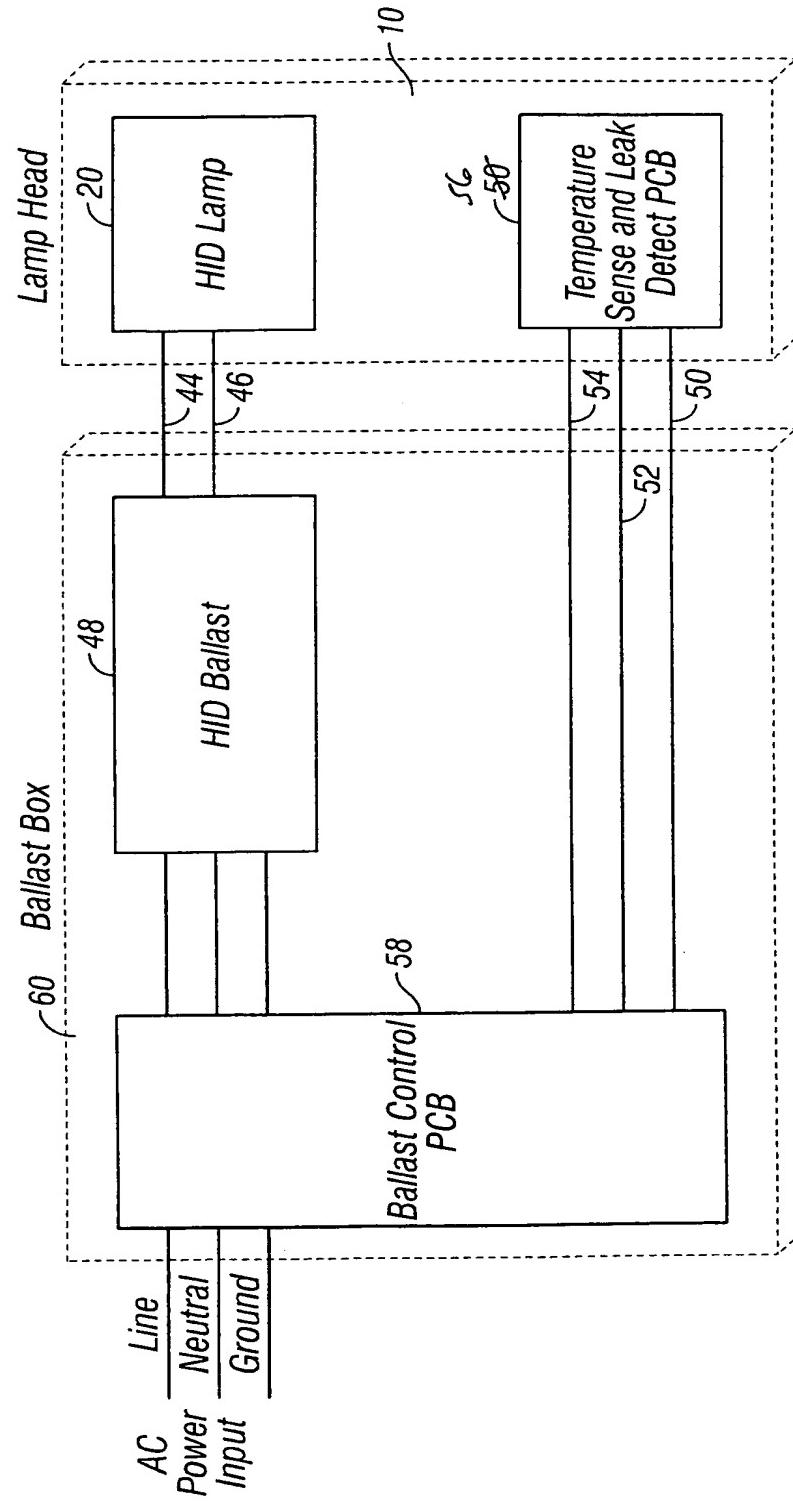


FIG. 3